REMARKS

In the Final Office Action mailed October 14, 2005, the Examiner rejected claims 32-34 under 35 U.S.C. § 112, and rejected claims 1-34 under 35 U.S.C. § 103. In this response, Applicants have amended claims 9, 10, 14, 18, 29 and 32 and cancelled claim 33. Upon entry of the amendments, claims 1-32 and 34 will be pending in the application.

In addition, Applicants have summarized a telephonic interview, which was conducted with the undersigned, Attila Banki, and the Examiner on December 7, 2005. In the telephonic interview, Applicants discussed the clarity and prior art rejections and the deficiencies of the prior art, which are discussed further below. Applicants appreciate the Examiner's consultation regarding the prior art and the rejections. Accordingly, reconsideration of the rejections and allowance of the pending claims is respectfully requested.

Rejections under 35 U.S.C. § 112

The Examiner rejected claims 32-34 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Examiner stated that "integrate the custom object oriented code with the main simulation system in a seamless manner that incorporates components and procedural algorithms defined by the main simulation system with the custom components and procedural algorithms defined by the simulation user into an integrated simulation, wherein the integrated simulation represents a model of a unique physical system configuration," as recited in claim 32, restricts the claim to modeling only unique system. Accordingly, Applicants have amended claim 32 to delete the phrase "wherein the integrated simulation represents a model of a unique physical system configuration" and the phrase "and procedural algorithms." Also, Applicants have added the term "system" with the phrase "integrated simulation" to clarify the claimed subject matter. As these amendments clarify the claimed subject matter and do not add any new matter, Applicants respectfully request entry of the amendments and withdrawal of the rejection.

Rejection under 35 U.S.C. § 103

The Examiner rejected claims 1-34 under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent No. 4,901,221 to Kodosky et al., which is herein referred to as "Kodosky," in view of certain passages of "Object-Oriented Analysis and Simulation" by David R. C. Hill, which is herein referred to as "Hill." Applicants respectfully assert that the Kodosky and Hill references do not disclose or teach the claimed subject matter.

In the rejection of independent claims 1, 20 and 32, the Examiner asserted that Kodosky teaches all of the recited features except "object oriented code" and "means for converting the constructed logic into corresponding object-oriented code during a simulation without intervention of the simulator user." *See* Office Action, pages 4-7. In an attempt to cure these deficiencies, the Examiner asserted that these features are either functionally equivalent or known in the art by certain passages in Hill. *See id.* However, the cited references, alone or in combination, fail to disclose all of the recited features in each of the independent claims, as discussed below. Further, the Examiner does not appear to assert any specific passages of the Kodosky and Hill references against the subject matter of claims 14 and 29. Hence, the cited references cannot render the claimed subject matter obvious.

To begin, Kodosky describes a method of programming a computer system to model a process, which is characterized by one or more input variables and one or more output variables. *See* Kodosky, col. 3, lines 50-57. In Kodosky, a diagram of a process and execution instructions of the process are electronically constructed, which are performed by a block diagram editor 22. *See id.* at col. 4, lines 2-10; col. 7 lines 35-53. Then, values are assigned for the input variables and electronic instructions are executed to produce the respective output variables, which are performed by an execution subsystem 24. *See id.* at col. 4, lines 10-14; col. 7, lines 54-59. The Kodosky reference also includes a second system 28 that includes a front panel editor 38 and icon editor 34 to permit a user to construct a virtual instrument 40. *See id.* at col. 7, line 60 to col. 8, line 21. The use of the block diagram editor is shown through specific computer screen displays in Figs. 20a-20l. *See id.* at Figs. 20a-20l; col. 14, line 55 to col. 16, line 3.

The passages of Hill describe a technique for simulation, which specifically describes interactive visual simulation. *See* Hill, page 138. Interactive visual simulation allows interaction with the simulation during the execution of the model. *See id.* at page 139. With

interactive visual simulation, an expert is capable of interacting with the model to explore different strategies. *See id.* at page 142. That is, the interactive visual simulation involves the user in the simulation. *See id.* at page 143. In particular, these interactions involve a creator of the model modifying different aspects of the model or alternatively, providing a user with menus to limit the interactions by preprogrammed rules that are part of the model. *See id.* at page 144.

Claims 1, 20 and 32

As noted above, the Examiner asserted that the Kodosky and Hill references disclose the claimed subject matter. However, Applicants submit that the Kodosky and Hill references fail to disclose all of the recited features. First, the references fail to disclose "means for converting the constructed logic into corresponding object-oriented code during a simulation without intervention of the simulator user," as recited in claim 1, "automatically converting the logic into corresponding object-oriented code," as recited in claim 20, and "convert the constructed model specific logic into corresponding custom object oriented code without intervention of the simulator user," as recited in claim 32. Second, the references fail to disclose "means for integrating the object oriented code with the main simulation system which comprises a simulation data model and simulation algorithms, resulting in an integrated customized simulation system without intervention of the simulator user," as recited in claim 1, "integrating the object oriented code with the main simulation system which comprises a simulation data model and simulation algorithms, resulting in an integrated simulation system for simulating the physical system," as recited in claim 20, and "integrate the custom object oriented code with the main simulation system in a seamless manner that incorporates components defined by the main simulation system with the custom components defined by the simulation user into an integrated simulation system," as recited in claim 32. Third, the "objected oriented code" is not believed to be functionally equivalent to the execution instructions in the cited passages of Kodosky. Finally, the references fail to disclose "interact with a simulator user of a computer system to construct model specific logic incorporating custom components that extend functionality of a main simulation system at run-time to customize a simulation of a physical system," as recited in claim 32.

Hence, the cited references cannot render the subject matter of claims 1, 20 and 32 obvious.

With regard to the first point, the Examiner admitted that the Kodosky reference does not explicitly teach "means for converting the constructed logic into corresponding object-oriented code during a simulation without intervention of the simulator user" and other limitations relating to manipulating the simulation while it is executing. Accordingly, the Examiner relied upon certain passages of Hill to teach this claimed feature. However, the cited passages of Hill fail to cure the deficiencies of Kodosky.

The passages of Hill, as noted above, describe a modeling system that is interactive with the user. However, these passages fail to disclose the claimed subject matter because the interactive visual simulation does not appear to convert any constructed logic into code and teaches user involvement with the simulation during its execution. First, interactive visual simulation allows modification of variables that influence the model. *See* Hill, page 143. It does not appear that the modifications involve constructing logic, much less converting constructed logic into object oriented code. Second, interactive visual simulation allows a user to interact with the simulation during the execution of the model. *See id.* at page 142. This involvement may even include providing menus to the user to limit user interactions with the model. *See id.* at pages 143-144. The passages appear to suggest user involvement with the simulation, not converting constructed logic into code during a simulation without user intervention. As such, the passages of Hill do not disclose the claimed subject matter of claims 1, 20 and 32. Accordingly, the passages of Hill fail to cure the deficiencies of Kodosky.

With regard to the second point, the Examiner appears to assert that "means for integrating the object oriented code with the main simulation system which comprises a simulation data model and simulation algorithms, resulting in an integrated customized simulation system without intervention of the simulator user," as recited in claim 1, and other related recitations in claims 20 and 32 are disclosed in col. 4, lines 2-14 in the Kodosky reference. However, the cited passage of Kodosky fails to teach or disclose the claimed subject matter.

As noted above, Kodosky describes a method of programming a computer system to model a process, which includes a block diagram editor 22 and an execution subsystem 24. *See* Kodosky, col. 4, lines 2-14; col. 7 lines 35-59. The block diagram editor 22 electronically constructs a diagram of a process and the execution subsystem 24 executes the execution instructions. *See id.* The execution subsystem 24 is described as a software construct that performs various steps, not a main simulation system that includes a simulation data model and simulation algorithms. *See id.* at col. 16, lines 3-27. Indeed, it appears from these steps that the execution subsystems simply executes the execution instructions, but does not integrate the constructed logic with a main simulation system. As a result, the execution subsystem 24 of Kodosky reference does not appear to integrate execution instructions into the execution subsystem 24. Further, the virtual instruments created in Kodosky process are block diagrams related to the execution instructions. *See id.* col. 16, lines 7-11. These execution instructions are not a main simulation system, much less the virtual instruments do not appear to be a main simulation system having a simulation data model and simulation algorithms. As such, Kodosky fails to disclose the claimed subject matter.

The passages of Hill fail to cure the deficiencies of the Kodosky reference. As noted above, the passages of Hill relate to interactive visual simulation and do not disclose or suggest constructing logic or integrating the constructed logic into a main simulation system. As such, the passages of Hill fail to disclose the claimed subject matter. Accordingly, the passages of Hill fail to cure the deficiencies of Kodosky.

With regards to a third point, the Examiner admitted that the Kodosky reference does not explicitly teach "objected oriented code," but asserted that execution instructions are functionally equivalent. However, the "object-oriented code" of claim 1, for example, is further described in dependent claims, such as claims 14-16, as being compiled into "object-oriented facility management object code" and having certain features that do not appear to be present in the execution instructions. As such, Applicants submit that the claimed "object-oriented code" does not appear to be functionally equivalent to the execution instructions described in the cited passages of the Kodosky reference.

With regard to the fourth point, the Examiner does not appear to assert any specific passages of the Kodosky and Hill references against the recitation of an interface configured to "interact with a simulator user of a computer system to construct model specific logic

incorporating custom components that extend functionality of a main simulation system at run-time to customize a simulation of a physical system," as recited in claim 32. Applicants submit that the Kodosky reference does not disclose this claimed subject matter. As noted above, the Kodosky reference describes creating execution instructions representing a diagram in a block diagram editor 22 and executing those electronic instructions in an execution subsystem 24. *See id.* at col. 4, lines 2-14; col. 7 lines 35-53. The reference does not disclose extending functionality of a main simulation system at run-time to customize a simulation of a physical system. As such, the Kodosky reference does not disclose this claimed subject matter.

While the Examiner does not appear to rely upon the passages of Hill, it fails to cure the deficiencies of the Kodosky reference. As noted above, the passages of Hill relate to interactive visual simulation and do not disclose or suggest constructing model specific logic to extend the functionality of the main simulation system at run-time. As such, the passages of Hill fail to disclose the claimed subject matter of claim 32.

Accordingly, in view of the remarks set forth above, Applicants respectfully submit that the Kodosky and Hill references cannot support a *prima facie* case of obviousness. Therefore, Applicants respectfully request the Examiner's withdraw the rejection and allow the pending claims 1-32 and 34.

Claims 14 and 29

In the rejection of claims 14 and 29, the Examiner does not appear to assert any specific passages of the Kodosky and Hill references against the subject matter of claims 14 and 29. The Examiner appears to admit that the Kodosky reference does not explicitly disclose "wherein the object-oriented code extends the simulation data model by creating new classes that inherit from the simulation data model, thereby enabling the object-oriented code to call functions of the simulation data model and use member data of the simulation data model," as recited in claim 14, and "wherein the converted object-oriented code extends the simulation data model by creating new classes that inherit from the simulation data model, thereby enabling the object-oriented code to call functions of the simulation data model and use member data of the simulation data model," as recited in claim 29. Indeed, as noted above, the Kodosky reference describes creating execution instructions representing a

diagram in a block diagram editor 22 and executing those electronic instructions in an execution subsystem 24. *See id.* at col. 4, lines 2-14; col. 7 lines 35-53. The reference does not disclose extending functionality of a main simulation system at run-time to customize a simulation of a physical system. Accordingly, Applicants submit that the Kodosky reference does not disclose this claimed subject matter.

While the Examiner does not appear to rely upon the passages of Hill, it fails to cure the deficiencies of the Kodosky reference. As noted above, the passages of Hill relate to interactive visual simulation and do not disclose or suggest extending the simulation data model by creating new classes. As such, the passages of Hill fail to disclose the claimed subject matter of claims 14 and 29.

Accordingly, because the passages of Hill fail to cure the deficiencies of Kodosky, Applicants respectfully submit that the Kodosky and Hill references cannot support a *prima facie* case of obviousness. Therefore, Applicants respectfully request the Examiner's withdraw the rejection and allow the pending claims 14 and 29.

Amendments to the Claims

In the rejections, the Examiner indicated that certain claims are unclear. In particular, the Examiner cited to specific words, such as the term "capable" in claims 9, 10, 14, 18 and 29. As discussed in the telephonic interview, Applicants have amended claims 9, 10, 14, 18 and 29 to clarify certain recitations. As these amendments merely clarify the claimed subject matter, they do not add any new matter. Accordingly, Applicants respectfully request entry of the amendments.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: December 14, 2005

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